

affirmatively. Is he educating families under his care according to the principles of preventive medicine? Is he securing requests for yearly physical examinations or for administration or some accepted immunizing agent against disease at the right period of life? There is still another side to this argumentative question. Is the health official aiding the physician in this fundamental work of preventive medicine? The health department does not desire to carry on any piece of work that the physician should do, but neglect of activities of this character leads to clinics and subsequent friction. Preventive medicine offers today to the practicing physician, not another specialty of medicine, but a most valuable avenue through which to guide patients and families who are in need of medical attention to the care of the personal physician.

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**Blood Pressure Determination.**—Blood pressure determination seems such a simple procedure that it is apparently superfluous to many to attempt to clarify what at first sight needs no clarification. But the writer has recently had a few experiences which indicate that mention of a few possible, and even frequent, causes of error in this regard will not be amiss.

Very frequently patients will remark that the doctor has told them that it makes no difference on which part of the body, from head to toe, the blood pressure is taken. That this statement is grossly in error is immediately evident to anyone familiar with the elements of the principles of hydraulics. The pressure at different levels in a column of fluid varies directly as the depth of this level or inversely as its height, and this applies also to the column of blood in a vessel.

For some not very obvious reason the blood pressure taken at the same level on the two sides of the body (as right and left elbows) may, and often does, vary, and sometimes quite considerably. This variation is more prominent usually in the systolic figures, as in the following case: right arm, 120/75; left arm, 145/70; but the diastolic figure also may vary considerably.

Much less known than the above is the so-called auscultatory gap, the "trou auscultatoire" of the French. This is a sudden loss, or decrease in intensity, of the sounds heard during the release of the pressure in the cuff of the sphygmomanometer. In a hypertension patient seen recently, the figures were 240-220 . . . 190-130. The length of this silent period is variable, its extent in different cases having been from 10 to 50 millimeters of mercury. It is not constantly present in the same individual, and its level and extent are also not constant in the same person. The explanations given for this phenomenon are many and unproven, but it does seem to be related to hypertension and to aortic stenosis, these having been present in all the recorded cases except for those of aneurysm and compression of the subclavian or brachial artery

mentioned by Gallavardin and Tixier,<sup>1</sup> and Gallavardin and Barbier,<sup>2</sup> and there seems to be a possible relationship toward an anacrotic pulse. The latter is present in cases of stiff arteries and of stenosis of the semilunar valves, according to Howell,<sup>3</sup> and Erlanger<sup>4</sup> who found that sounds in the first and second phases, as heard in the auscultatory method of blood pressure determination, become faint and often disappear if the artery below the cuff is temporarily occluded. This latter is the same as increasing the peripheral resistance and thus imitates the conditions present in lessened vascular elasticity and gives a quickened reflection of the pulse wave, which is presumed to be in etiological relationship. Von Kries<sup>5</sup> states that the anacrotic pulse may be produced by raising the arm, which he believes favors reflection of the pulse wave from the periphery and that the anacrotic pulse is simply a quickly reflected wave. However, von Recklinghausen states that conditions leading to diminution in vascular tone and dilatation of the arteries produce "weak reflection" and an anacrotic pulse. Constriction of the small arteries in any system favors quick reflection in the artery supplying the system and produces a pulse with a sharp-pointed apex. It does seem that, if there is an increased peripheral resistance, the blood pressure during the second phase, when the flow into the artery distal to the cuff is ordinarily rapid, may mount, owing to the high peripheral resistance, to a height sufficient to cause the sounds to disappear for a definite interval and to become audible again when the louder sounds of the third phase develop.

Recently, in a patient with unmistakable chronic gout, the blood pressure was taken with the patient standing and was found to be 190/80 while the pulse was 126 and regular. Thorough examination revealed no reason for the tachycardia; however, a surprising finding was a sudden rise of the blood pressure to 235/80 and a drop in pulse rate to 52, the rate remaining regular, in either the sitting or reclining position. Standing caused the pulse and blood pressure to revert to the previous figures. This was checked a number of times, and each time the same changes occurred in the same positions. No reason for this change could be found. The heart was only slightly enlarged to percussion, and this was confirmed by the orthocardiogram; blood count, urine, and Wassermann were all negative and the blood uric acid was only a high normal. Electrocardiogram was normal.

Perhaps better known, but not always sufficiently considered, is the fact that the first blood pressure reading is not in most cases the true one.

<sup>1</sup> Gallavardin et Tixier. Dissociation sphygmomanométrique oscillatoire et vibro-auscultatoire dans un cas de rétrécissement aortique serré et insuffisance aortique avec pulsus tardus et anacrotisme. *Arch. d. mal. du coeur*, 12, 447, 1919.

<sup>2</sup> Gallavardin et Barbier. Le trou auscultatoire et ses conditions de production. *Lyon méd.*, 130, 605, 1921.

<sup>3</sup> Howell. *Textbook of Physiology*.

<sup>4</sup> Erlanger, J. Studies in blood pressure estimations by indirect methods. II. The mechanism of the compression sounds of Korotkoff. *Am. J. Physiol.*, 40, 82, 1916.

<sup>5</sup> Von Kries. *Studien der Pulslehre*, 1892.

This is so in secondary hypertension as well as in the primary, or essential, form. In the latter type, Ayman,<sup>6</sup> after investigation, recently concluded that "the instability of the blood pressure in essential hypertension will often lead to normal readings of the blood pressure if the patient sits quietly for from five to twenty minutes" and that this occurs even in patients with widespread vascular changes, he having observed this to occur in 56 per cent of seventy-six unselected cases. Just as the French speak of a "consultation murmur," so we may speak of a psychic or "consultation" hypertension.

Above are just a few facts to indicate that blood pressure determinations are not the simple procedures they are thought to be by many, and that care should be exercised in their determination.

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<sup>6</sup> Ayman, David. Normal blood pressure in essential hypertension. *J. A. M. A.*, 94, 1214, April 19, 1930.

**Di Sodium Tetra Iodo Ortho Sulpho Benzo Ate.**—Sounds like a college yell or the chorus of a comic opera. But it is neither. Merely the de-floyd-gibson-ized name of a new adjunct to x-ray diagnosis. Injected into diseased joints, it has led to such real or psychic improvement that several patients have asked for a second "treatment." Nevertheless no curative effect is claimed for the new polysyllabic drug. The discovery of this new substance is of particular interest as exemplifying the painstaking modesty of ethical medical research, as contrasted with the flaming headlines of research charlatanism.

In order to prescribe rational treatment in joint disease, it is necessary to determine the exact local pathologic condition. Abnormalities in bones are readily photographed, but such photographs throw little or no light on lesions of the synovial membrane and surrounding soft parts. Changes in these non-osseous tissues are readily determined by the new diagnostic agent.

In order to discover or invent a safe injection mass for joint cavities, it was necessary for research chemists to find or synthesize some x-ray opaque substance, absolutely nontoxic for synovial tissues, readily diffusible through joint membranes, and rapidly eliminated by the kidneys. During the last fifteen years, numerous substances have been tested by Doctor Keller and his associates, orthopedic surgeons of the Neurological Hospital, New York City.<sup>1</sup> At the end of this period the substance whose disjointed name is at the head of this item was perfected.

A solution of this salt isotonic with human blood was first found by Doctor Keller and his collaborators<sup>2</sup> to be nonirritating when instilled into the conjunctival sac of the human eye. Subcutaneous, intramuscular and intravenous injections

into lower animals gave no evidences of local irritation or general toxicity. The new drug was rapidly eliminated by the kidneys without causing demonstrable disturbance in kidney function. Administered to rats, previously trained to find their way through a circular maze, the new compound produced no demonstrable psychic or neuromuscular disturbance. Injected into joint cavities, clear x-ray pictures were obtained of normal synovial sacs.

Isotonic solutions of the new agent were now injected into the synovial sacs of arthritic cases. Such injections were found to give distinct x-ray shadows, showing synovial adhesions and other partial obliterations of joint cavities. Altered synovial permeability was estimated from the altered rate of excretions by the kidneys. In many cases the real or psychic after-effects were so pleasant that the patient mistook the new method of diagnosis for specific treatment, and asked for a second injection.

Doctor Keller's failure to exploit his new polysyllabic drug as the long-sought-for specific for articular rheumatism has probably cost the New York hospital a million dollars of easy money, readily extractable from a credulous public.

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**Cancer of the Stomach.**—Cancer of the stomach, while necessarily a surgical condition, is of vital importance to the internist and general practitioner. Its early recognition very frequently depends upon them, owing to the fact that they are usually the first medical contacts which the patient makes. This being the case great responsibility falls upon them and it is necessary that their conception of the disease be one well seasoned with good judgment which implies:

1. Diagnostic skill.
2. An acceptance of recognized views, especially those that pertain to gastric ulcer as a probable soil for malignancy.
3. Selected medical treatment.

Diagnostic skill embraces more than its name implies. This applies especially to this disease. Exhaustive examinations may fail to reveal organic disease, but in spite of this, a mind open to all possibilities and permitting an exploratory operation in selected cases, is consistent with good judgment, as it often permits of the discovery of a malignant condition in its early stages.

That a neurotic individual who has been subject to gastro-intestinal symptoms for years may develop an accompanying malignancy should never be overlooked.

Cancer of the stomach may simulate an ulcer even though it has not had an ulcer background. No patient with gastro-intestinal symptoms, or with certain other findings such as an obscure anemia, even though unaccompanied by gastric symptoms, should be denied an x-ray study. In the final analysis our most valuable information is obtained from this source. My only criticism of its use is that a final verdict is frequently based

<sup>1</sup> Keller, H. Experimental Studies on Visualization of Joints by Injections of a Drug. *Proc. Soc. Exper. Biol. and Med.*, 27, 852, May 1930.

<sup>2</sup> Macht, D. I., and Twiss, D. A Pharmacological Study of Sodium Tetra-iodo-ortho-sulpho Benzoate. *Ibid.*, 27, 850, May 1930.